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(54) Title: **A CATALYST FOR THE (CO)POLYMERISATION OF ETHYLENE AND A METHOD FOR THE PREPARATION THEREOF**

(57) Abstract

A particulate, modified chromium oxide catalyst for the polymerisation of ethylene or ethylene with α -olefins, comprising: a) a chromium-oxide catalyst, b) a transition metal compound, and c) a catalyst activator. A method for the preparation of the catalyst comprises the steps of: a) subjecting a chromium oxide catalyst precursor, which comprises a chromium oxide compound combined with an inorganic support, to a temperature in the range of from 400 to 950 °C under oxidising conditions, and b) impregnating the obtained chromium catalyst with a catalyst activator and with a transition metal compound which comprises at least one cyclopentadienyl ring bonded to said transition metal and at least ligand selected from the group comprising alkoxy, amido and hydrocarbyl radicals, halogen and hybride bonded to said transition metal, which cyclopentadienyl ring may contain hetero atoms, be unsubstituted or substituted, be bonded to said transition metal through a bridge, and optionally annealed to other substituted or unsubstituted ring structures, and if two cyclopentadienyl rings are present they may be bonded to each other through a bridge, and c) subjecting the thus obtained particulate catalyst to drying conditions. This catalyst is suitable for producing polyethylenes under conditions of continuous feeding of all reactants.